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NOVEMBER MEETING: The next regular meeting of the Association will be held on Thursday evening, 11th inst., at eight o'clock sharp, in the Lecture Hall of the California Development Board, mezzanine floor of the Ferry Building.

Dr. G. Dallas Hanna, Curator of Invertebrate Paleontology, California Academy of Sciences, will favor the Association with an illustrated lecture on the "Birds of the Alaska Fur Seal Islands." Visitors are cordially invited.

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NOVEMBER FIELD TRIP will be taken on Sunday, November 14th, to Lake Lagunitas. Purchase return tickets for Ross and take Sausalito ferry leaving San Francisco at 8:45 a. m. Bring lunch and canteens or cups. This is a walk of about eight miles, up the canyon, around the lake, and back to Ross.

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PROCEEDINGS OF THE OCTOBER MEETING: The forty-fifth regular meeting of the Association was held on October 14th, in the Ferry Building, with President D'Evelyn in the chair; Mrs. C. R. Smith, Secretary; nearly forty members and guests in attendance.

The Board of Directors convened just prior to the meeting and elected to membership Mrs. Lillian D. Hohfeld, Miss Ida M. Manley, Messrs. A. C. Schindler and Allen F. Whipple.

Following a brief business meeting came the feature of the evening,

King Penguins in Captivity

an address by Dr. Frederick W. D'Evelyn, President of the Association; illustrated by a series of beautiful original slides showing the moulting changes in the birds and various incidents in the incubation and rearing of the chick.

The association has already acknowledged its indebtedness to Prof. J. Cossar-Ewart of Edinburgh University and to T. H. Gillespie, Esq., Director-Secretary of the Zoological Society of Scotland, for their courtesy in transmitting data and photographs.

The recorded observations on plumage changes were the results of a study of a special group of five King Penguins in the gardens of the Zoological Society. In January, 1914, two young penguins reached the gardens from the rookeries on South Georgia Island, a lonely uninhabited spot in the south Atlantic Ocean, about one thousand miles due east of Tierra del Fuego. These birds were probably hatched in January, 1913. Had they

THE GULL

remained in the rookeries, they would probably have donned the immature coat in February, 1914, and would have assumed their adult plumage in the following year, 1915. The six weeks' voyage and the radical changes in habitat, climate and other conditions apparently broke the rhythm of the process, for no attempt to moult was made in February or March of 1914. In May, the response to the stimuli to shed their down was so feeble that results were very limited. It was not until August that the first bird, nor until September that the second bird, completed the moulting of the down coat, which was replaced by the immature coat presenting many of the characteristics of the adult plumage. There was no attempt at Spring moulting in 1915.

It is worthy of note that the King Penguins at both the London and the Scottish Gardens, finally became so acclimated that they forsook their former moulting seasons, under natural conditions, and adopted the seasonal program followed by birds peculiar to the latitude in which the Kings were then resident. Early in May, 1915, Director Gillespie transferred the group to new quarters, in which there was a pool sufficiently broad and deep to afford ample opportunity for exercise. Under these new conditions, observations were made of many theretofore unrecorded habits of the birds, details of which may not be elaborated in this article.

Toward the middle of July, marked changes were noted in the behavior of the birds. They became inactive, morose; ceased to feed, and discontinued all attention to their plumage, which became unkempt and worn. The records taken at this time closely resemble a clinical chart in a hospital ward. The birds gave evidence of great dejection and experienced difficulty in making vocal sounds and in breathing, even to the degree of actual suffering. They gasped painfully, the respirations running up from sixteen to thirty-six per minute. Huddled up, with feathers awry and temper very bad; holding themselves entirely aloof and deserted by their companions, the moulting birds became veritable objects of pity.

About August 17th, moulting set in vigorously, accompanied by marked improvement in psycho-physiological conditions. All the old feathers were completely displaced by full-grown, brilliant new plumage in the short space of ten days. The "voice" changes during the transition from chick to adult in these penguins are of much interest, but cannot be recounted here.

Director Gillespie is naturally rather proud of his unique achievement in the incubation and rearing of one of these chicks outside its natural habitat, and the story is of more than passing interest to the ornithologist. A pair of the birds attempted to breed in 1918, and an egg was produced but was broken by awkward footwork on the part of the male. The incubation period of these large penguins, whether in captivity or under normal conditions, is one fraught with great hazard and often with tragedy. The egg which came through in safety was laid September 1, 1919, and hatched on October 24th, a period of fifty-three days. It is notable that this period is the same as the one usually ascribed to incubation by the Emperor Penguin, weighing 85 to 90 pounds, while the King Penguins average only 30 to 32 pounds.

The favorite resting place of the parent penguins was a somewhat shelving, rocky slope. As a precautionary measure, this was leveled up by the addition of some sand, and here the female scooped a slight hollow and remained at rest. Both parents took part in the labor of incubation, the "shifts" varying from twelve hours to ten days. In contrast with the female, the male wandered about with the egg, even lowering himself from one ledge to another, moving backwards. The high degree of this accomplishment will be appreciated when it is noted that the King, like the Emperor, makes no nest, but the egg is held at all times upon the upper surfaces of the feet, being firmly pressed against the legs by an apron-like fold of the skin of the lower abdomen. The sphincter-like action of this fold is

THE GULL

so marked that the bird may be lifted bodily from the ground without dropping the egg. An incubating bird can even release a foot, balancing the while upon the other foot and the cormorant-like tail, and scratch the top of its head. Notwithstanding this agility, ill-luck may attend the operation and calamity overtake the egg.

The male bird was standing watch at the time of hatching, but the female soon took the chick away from him and she retained it during the whole of the rearing period. When hatched, the chick was almost naked and remained attached to the egg for nearly forty-eight hours. Its growth was very rapid, and it secured its food pelican-wise, by thrusting its head into the mother's gullet and partaking of the half digested fish there found. The latest reports bear date of July, 1920, and state that the baby has completed his first moult; that he is in intermediate plumage, showing only very pale yellow on the auricular patches and throat and retaining the black mandible sheaths; that his health is excellent and that his parents give indications of nesting again.

The penguin, irrespective of species, is an oddity in appearance and habits. Not the least peculiar of its traits is the instinct of mothering and companionship. Detached individuals always tender their services to the family circle. The late Dr. Wilson, Naturalist-Surgeon with the "Discovery" expedition, estimated that over 77 per cent of the Emperor chicks hatched are killed by kindness, for, if a chick is deserted for a moment, there is at once a scrimmage among a dozen or more adults for its possession, which often ends in the trampling to death of the unfortunate youngster. This same characteristic is also noticed, but to a less extent, among King Penguins. During the development of the chick in the Scottish Gardens, an unemployed female insisted upon standing "next" to the parent birds throughout the period of incubation and rearing.

Penguins have many human characteristics, as well. One of the photographs shows the baby exhibiting a fine sample of temper, after being crossed in some way. He is lying flat on the ground, with his stubby little wings or flippers extended, as mad as a hatter. When the adults are shifted from one place to another, against their will, they back away from the keeper with their flippers extended in expostulation.

* * *

OCTOBER FIELD TRIP was taken on Sunday, October 17th, to the beautiful Lake Merced country. Starting from the gate on Sloat Boulevard and Fortieth Avenue, the party proceeded to skirt the northerly lake, almost to its easterly end; then crossing the ridge and tracing the shore of the main lake around to its southeasterly end. Here a number of members left for home but eight of the party followed the Ocean Shore tracks to Mussel Rocks. Toward sundown the return trip was started along the beach and all edible fragments of lunches were consumed at Thornton just as the daylight was failing. From here the trip to the street car at Daly City was made in the dark, and the party reached this haven without determining the mooted question whether it were better to break your neck crawling over a high trestle in the dark, or to walk along the State highway and be tossed by a wild motor car.

Birds encountered were: Western, eared and pied-bill grebes; common loon; five murres dead on the beach; western, California and Heermann gulls; young gulls of some very large species feasting upon the carcass of a whale, long dead; Brandt cormorants, mallards and ruddy ducks; great blue heron and coots; red phalaropes on the beach and northern phalaropes on the lake; Wilson snipe, sandpipers and a willet (?); sharp-shinned, red-tailed and sparrow hawks; kingfisher, flicker and Anna hummer; Say and black phoebes, meadow lark and linnet; green-backed goldfinches, Nuttall sparrows and Sierra juncos; song and fox sparrows, San Francisco tow-

THE GULL

hees and California shrike; Audubon warbler, salt marsh yellowthroat, Vigors and tule wrens; chickadees, bush-tits and wren-tits. Forty-three species in all.

A pathetic little tragedy was being enacted as the party wandered homeward on the beach. Several red phalaropes were seen feeding on insects on the sand. One pair, a male and a female, did not offer to fly and we were able to work quite close up to them. The male would pick up a bug or two, now and again, but the female stood quite still. There was something peculiar about her actions and appearance and when we came close enough the explanation was simple. Some thoughtless idler, the better to enjoy his outing, had taken a shot at her and had succeeded in shattering her lower mandible, which hung down, useless. Her little breast was sprinkled with blood. Otherwise uninjured, she could neither eat nor drink, and her companion was standing by while she was dying. We had no way of putting her out of her misery and we perforce carried away in our minds the thought of the dainty, pretty little creature, innocent of all harm, passing through the tortures of Tantalus, until by suffering she might win her release.

Members present were: Mesdemoiselles Applegarth, Burroughs, Cassidy, Gunn, Griffin, King, Pierce and Wilson; Mesdames Kibbe and Neugass; Messrs. Bell, Kahn, Kibbe, Thomas and Whipple. As guests, Mesdames Beaman, Chapin and Warrington, Miss Stern and Mr. zur Lowen. Fifteen members and five guests.

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"TWO HUMMING BIRDS FOR A PENNY" (Trade Quotation)

Fifty-two lines of print constituted the original Plumage Bill recently "killed" in the British Parliament. A fine solicitude for the prosperity of "The Trade" led certain members to juggle into the bill some one hundred and seven amendments. The bill was forced back into the business programme and adjournment left it among the unfinished business. It had passed the House of Lords and was supported in the Commons by a large majority. Comment is needless. Fashion nurtures the trade. Trade reaches the law makers,—and the plumage birds of the world are hunted to extinction.

"Two Humming Birds for a Penny." A Belgian statistician, and others, compute *human* loss from the world war at thirty to forty millions. Thirty-five million bird skins is the *annual* import into the plumage market in London. Something to think about.

F. W. D'E.

AUDUBON ASSOCIATION OF THE PACIFIC FOR THE STUDY AND THE PROTECTION OF BIRDS

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